AS Level Economics:

The Price System and the Microeconomy

Lesson 2.05

Topic 2: Price Elasticity, Income Elasticity, and Cross Elasticity of Demand

Price Elasticity of Demand

Revision Notes

Cambridge will assess your ability to:

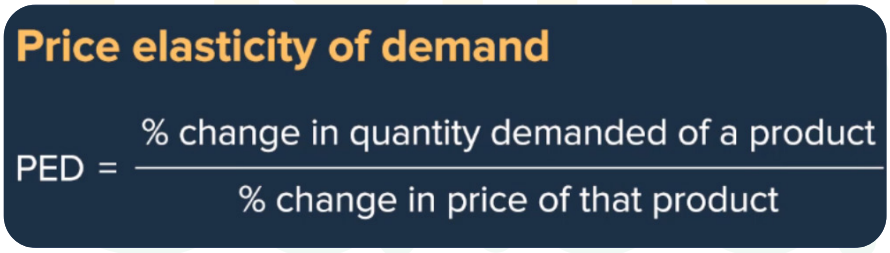
- Definition of price elasticity of demand (PED)
- Formulae for and calculation of price elasticity of demand
- Significance of relative percentage changes, the size and sign of the coefficient of price elasticity of demand
- Descriptions of elasticity values: perfectly elastic, (highly) elastic, unitary elasticity, (highly) inelastic, perfectly inelastic

• Concept of elasticity

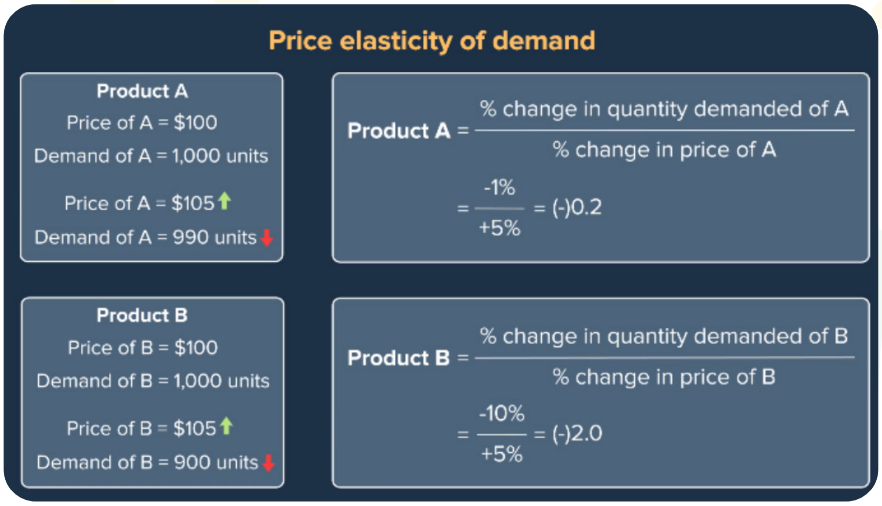
◦ The **elasticity of demand** measures the responsiveness of the quantity demanded for a product to changes in various factors, including its price, the price of related goods, income, and more.

◦ **Price elasticity of demand (PED)** specifically quantifies how the quantity demanded changes in response to changes in the price of a product.

- **Price elasticity of demand (PED)**
  - **PED** is a numerical measure of the responsiveness of quantity demanded to changes in the price of a product.
  - It is calculated as the percentage change in quantity demanded divided by the percentage change in price.

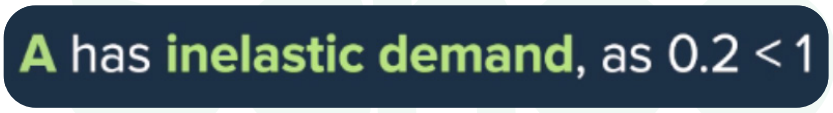


  - The sign of the PED coefficient is **negative.**
  - The **negative sign** indicates an **inverse** or **negative** relationship between **price** and **quantity demanded.**



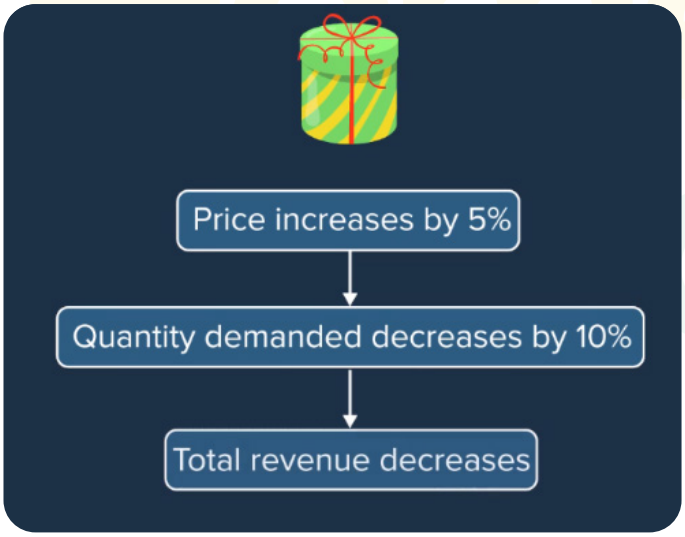
  - Economists typically consider PED in absolute terms, ignoring the negative sign
  - The **size** of the **coefficient** of **PED** indicates the **degree of elasticity:**
    - **PED > 1** indicates **elastic demand**, where the quantity demanded is **more responsive** to price changes.

- For example, a 5% price increase might lead to a 10% decrease in the quantity demanded.
- The higher the value of the coefficient, the higher the elasticity.
- **PED < 1** indicates **inelastic demand**, where the quantity demanded is **less responsive** to price changes.



- For example, a 5% price increase might lead to only a 1% decrease in the quantity demanded.
- The lower the value of the coefficient (near zero), the lower the elasticity.

- **Total revenue and elastic demand**
  - When demand is elastic **(PED > 1),** an increase in price leads to a proportionally larger decrease in the quantity demanded.



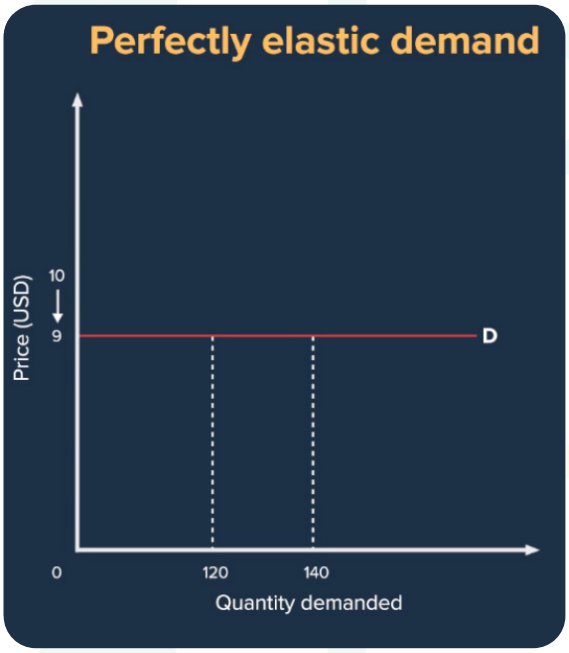
  - If a seller decreases the price, it results in a proportionally larger increase in the quantity demanded.
  - **Elastic demand** leads to an **increase** in **total revenue** when the **price decreases** and a **decrease** in t**otal revenue** when the **price increases**.

- **Total revenue and inelastic demand**
  - When demand is inelastic **(PED < 1)**, an increase in price leads to a proportionally smaller decrease in the quantity demanded.

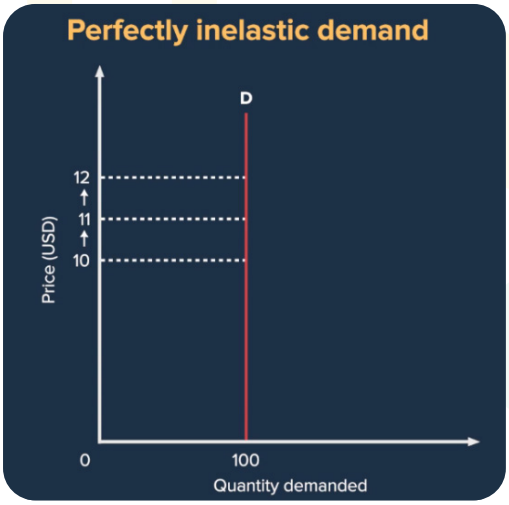
  - If a seller decreases the price, it results in a proportionally smaller increase in the quantity demanded.
  - **Inelastic demand** leads to an **increase** in **total revenue** when the price increases and a **decrease** in **total revenue** when the **price decreases.**

- In short, the relationship between **total revenue** and the **elasticity of demand** is **inverse.** For **elastic demand, increasing total revenue** involves **lowering** the **price**, while for **inelastic demand, increasing total revenue** involves **raising** the price.

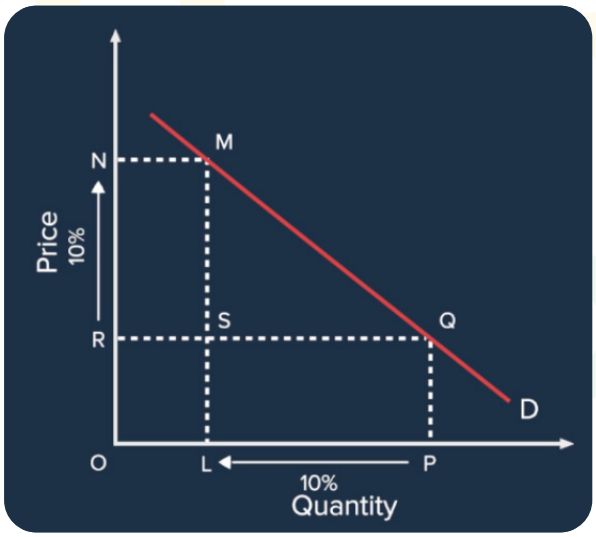
- **Special PED Values**
  - **Perfectly elastic demand:** Occurs when **PED** = **infinity.** Any small change in price results in an infinite change in quantity demanded. The demand curve is horizontal.



- **Perfectly Inelastic Demand:** Occurs when **PED** = **0.** Price changes have no effect on the quantity demanded. The demand curve is vertical.



- **Unitary Elastic Demand:** Occurs when **PED** = **1**. The percentage change in quantity demanded equals the percentage change in price.



Sample examination question on this topic:

1. The producer of a good with a price-elastic demand observes that a rise in its price is accompanied by a rise in total revenue.

   What might explain this?

   A. The good is an inferior good.
   B. The rise in price was due to an increase in demand for the good.
   C. The supply of the good was inadequate to meet the demand.
   D. The supply of the good was price-inelastic.

   Answer: B

   For a good with a price elastic demand, the increase in price decreases the demand for that good and consequently the total revenue would decrease. This is because an increase in the price of goods with elastic demand leads to a proportionally larger decrease in the quantity demanded. Hence, if the producer of a good with a price-elastic demand observes that a rise in its price is accompanied by a rise in total revenue, then it would mean that the rise in price of the good is due to an increase in demand for the good. So, the correct option is B.